ONTARIO MINISTRY OF ENVIRONMENT
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CHALLENGE PAPER

Ontario Round Table on Environment and Economy

Table ronde de l'Ontario sur l'environnement et l'économie

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PREFACE

The purpose of this document is to provide a foundation for implementing sustainable development in Ontario.

Part I describes the mission of the Ontario Round Table on Environment and Economy and talks about the application of sustainable development to Ontario. It also presents the Round Table's six principles which will be used to guide and implement sustainable development. To conclude, the process for developing the strategy and ways in which everyone can get involved are outlined (see page 10).

Part II illustrates the application of the principles by using six topic areas — water, forest communities, food and agriculture, waste, the atmosphere, and cities and towns. Each topic area outlines directions for change, examples of what individuals and organizations are already doing, and suggested milestones or targets to evaluate future progress.

TABLE OF CONTENTS

Preface ..... (i)

Message from the Round Table 2

Part I

The Challenge–A Healthy Environment and a Vigorous Economy 4

A Global Agenda for Change 4
Sustainable Development 5
The Immediate Challenge 5
- Six Guiding Principles 6
- Anticipation and Prevention 6
- Full Cost Accounting 6
- Informed Decision Making 7
- Living Off the Interest 7
- Quality of Development over Quantity 8
- Respect for Nature and the Rights of Future Generations 8

Directions for Change; Milestones and Targets 9
Next Steps 9
What You Can Do 10

Part II

Applying the Principles–Topic Areas
- Water 12
- Food and Agriculture 16
- Forest Communities 20
- Waste 24
- The Atmosphere 28
- Cities and Towns 32

Appendices

Further Reading 36
Response Form 37
Round Table Membership ..... Inside Back Cover

MESSAGE FROM THE ONTARIO ROUND TABLE ON ENVIRONMENT AND ECONOMY

Our ability to protect the quality of our environment while ensuring our own economic prosperity will test the will and vision of all Ontarians. What economic and environmental legacy will we leave future generations? How must we change in order to enhance both our economy and our environment?

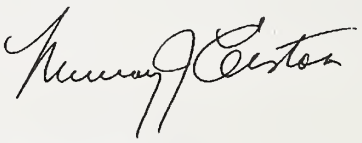
As global citizens, we must be prepared to face the challenge that these questions present — the challenge of sustainable development — by forging the new links between our environment and economy that will help us improve our quality of life, now and in the future. The Round Table on the Environment and Economy was established to help us meet this challenge.

The members of the Round Table believe that real opportunities for progress exist if we are willing to apply the concept of sustainable development to our decisions and actions. This challenge paper is intended to provide a foundation for the development and implementation of a sustainable development strategy for this decade and the 21st century.

Although the Round Table members have divergent backgrounds and interests, we have been able to find common ground on the principles and directions for change. We have also agreed on the consultation process necessary to develop a sustainable development strategy. Our common ground is based, in part, on the shared belief that something must be done. We are now asking all of you to help. The immediate task is to determine how to achieve sustainable development in Ontario.

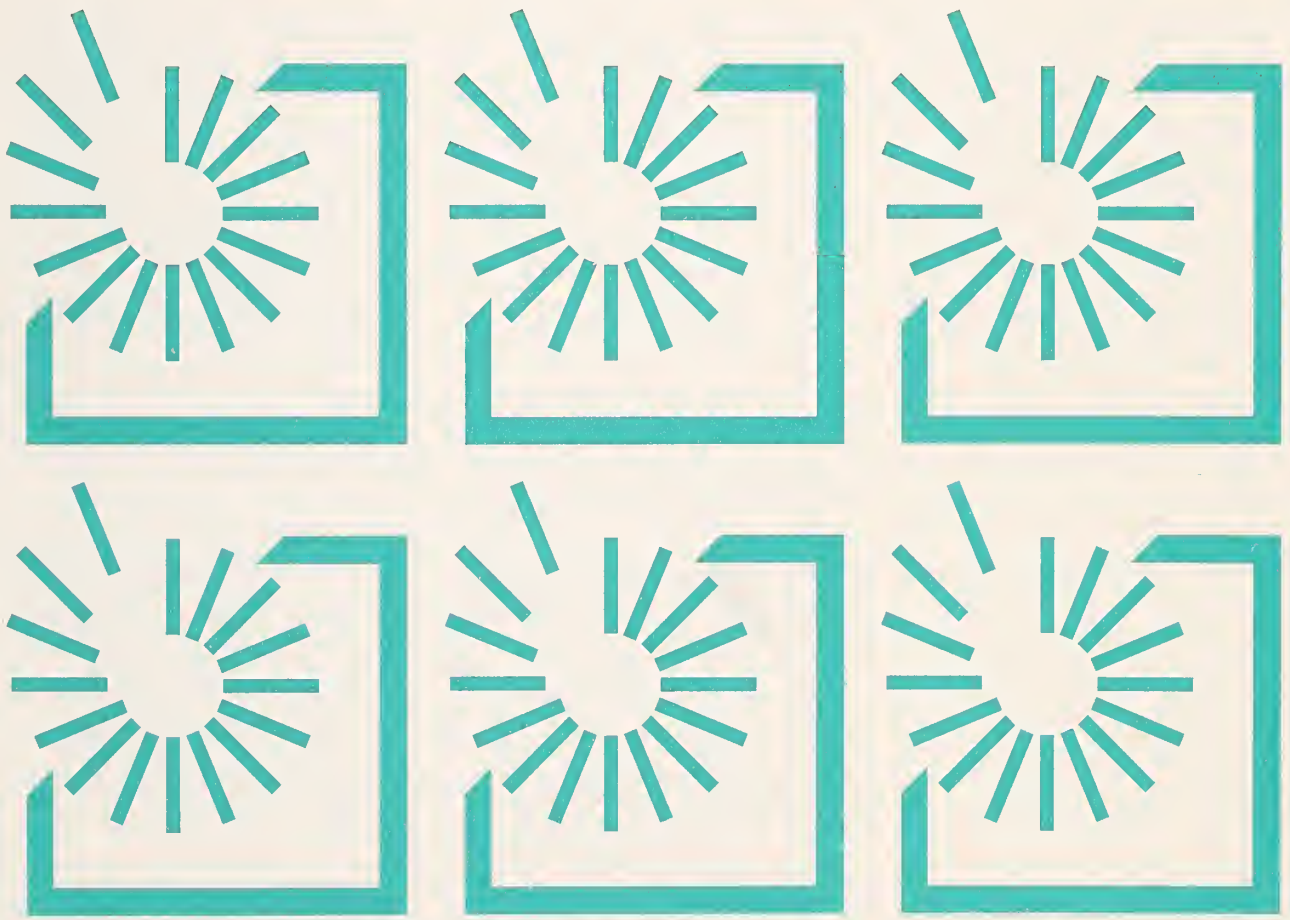
Help us work together to build a sustainable future for our children.

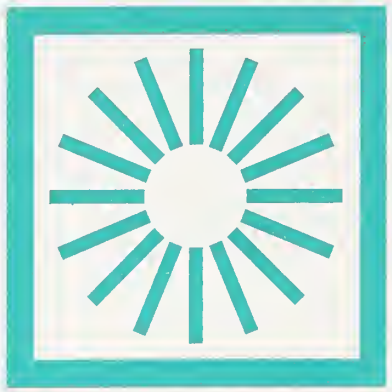
On behalf of the Round Table on Environment and Economy:



Murray J. Elston
Chairman

PART I
THE CHALLENGE





THE CHALLENGE: A HEALTHY ENVIRONMENT AND A VIGOROUS ECONOMY

A GLOBAL AGENDA FOR CHANGE

Over the past decade, we have become increasingly aware that our economy and our environment are inextricably linked. Recent revelations about the state of the environment and the economies of Eastern Europe amply demonstrate this. For example, water is so polluted in some areas that industry cannot use it. It is clear that decisions about the economy and the environment cannot be made in isolation.

Worldwide, there is growing concern over the steady degradation in the health of the environment - evidenced by problems such as poor tree growth in the Black Forest, loss of the rain forests and destruction of soils in the Amazon Basin, and here at home, the pollution in the Great Lakes.

The global pressures are mounting. World population, currently at five billion, is expected to reach 10 billion sometime in the next century. Meanwhile, the limits of our resource base and the capacity of our physical environment to absorb wastes has become increasingly apparent. Given current technology, resource management, investment decisions and institutional structures, this raises concern that the earth's carrying capacity is approaching its environmental limits.

The Love Canal, Chernobyl, Bhopal, and the Exxon Valdez have become part of the modern lexicon of environmental disasters. What sort of legacy will we be leaving future generations who will inhabit the planet? Will it be an impoverished legacy of polluted air and water and depleted resources? Or can we shape the future with decisions and actions that will support a strong economy and protect the natural environment?

In response, the World Commission on Environment and Development, established by the United Nations, studied these questions on a global scale. In its 1987 report, titled "Our Common Future", the Commission recommended a new course of action and challenged people around the world to work towards sustainable development - meeting today's needs without compromising the ability of future generations to do the same.

To provide leadership and direction in meeting the challenge of implementing sustainable development, the Ontario government established the Round Table on Environment and Economy. Comprised of 21 leaders from environmental organizations, industry, labour, agriculture, aboriginal peoples, academia and government, the Round Table is bringing concerned people together to find solutions through consensus-building.

The Round Table is now bringing this challenge to the people of Ontario - to work together, to find new ways to achieve economic progress, and to create a long-term strategy that will support both a vigorous economy and a healthy environment.

The Round Table will do this by encouraging public discussion and debate, and by building commitment among all Ontarians to change some of the ways we do business in order to protect our fragile environment.

And while the long-term strategy is under development, the Round Table is taking concrete action with demonstration projects that will apply the principles of sustainable development and provide examples for others to follow.

This course will not be easy. The Round Table itself has spent many hours discussing the issues presented in this paper. There is total agreement that something must be done. The question of how it is to be done is a source of continuing discussion.

The actions that need to be taken and where responsibility lies are crucial to the debate. Also fundamental to the debate is the question of the quality and composition of future economic development in Ontario, its impact on the environment, and the implications for our individual and collective prosperity.

This "Challenge Paper" is the Round Table's call to action. It is our first, important step in the preparation of a provincial strategy for sustainable development. It sets out a course of action for the future by exploring the environmental and economic issues that must be addressed and the choices that will have to be made.

SUSTAINABLE DEVELOPMENT

Sustainable development is premised on our ability to forge links between the environment and the economy that can support an enhanced quality of life - now and in the future.

The environment contributes both directly and indirectly to our well-being. Directly, it provides life support with air and water and amenities such as access to wilderness. Indirectly, it provides natural resources, which in turn provide food, other economic goods and services and employment. Enhancing the quality of our life support systems and our economic activities in order to meet our needs and the needs of future generations is a major objective of sustainable development.

The various demands placed on the environment by economic activities often make this difficult. Decisions on economic matters are often made in isolation, divorced from consideration of the natural environment.

We are becoming much more aware of the global consequences of our actions - as individuals, as businesses, and as nations - on the environment. This is particularly true as we become more interdependent due to the globalization of the world economy and the emergence of environmental problems of potential global significance. Our world is a closed ecosystem where economic activities in one region can affect not only the local environment, but the world environment with sometimes serious consequences.

This demands that our economic activities operate within the capacity of the environment, striving for efficiency in our production systems and sustainability in the use of our natural resources. In this way, our development as a society will be sustainable, as each generation ensures that the ability of future generations to meet their needs is not compromised.

THE IMMEDIATE CHALLENGE

The challenge for Ontario is to bring environmental considerations more into the mainstream of economic decision-making - into the centre of our planning for the future of the province, so that we can take advantage of the opportunities that arise when we address environmental concerns.

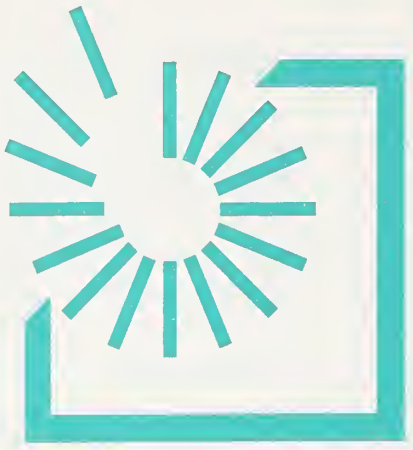
Many of the problems that we face today such as toxic contaminants, acid rain, and solid waste management, are the result of past decisions made without consideration of their impact on the natural environment. These decisions effectively "borrowed" from the environment and many of the debts are now coming due in the form of expensive clean-ups and other remedial actions.

Economic decisions which produce environmental liabilities are based, among other things, on a perception that the decision-maker is not responsible for the consequences, or on a lack of information.

Many Ontario companies and individuals are already working to ensure that their actions do not lead to such liabilities. Some organizations have already conducted environmental audits and have begun to change the way they do business. They have seen an opportunity to work in an environmentally-sensitive manner while actually improving their bottom-line and enhancing their international competitiveness (see Part II).

The process of transition has just begun. Ontarians will continue to find solutions to link the environment and the economy - actions made in Ontario, for the people of Ontario. These actions and solutions will need to support global efforts and initiatives, and will require that individuals take responsibility for their own actions.

Our ultimate goal is a sustainable future for Ontario - where both the standard of living and our quality of life are enhanced; where economic progress and prosperity can be achieved within a healthy environment.



A ROAD MAP

SIX GUIDING PRINCIPLES FOR SUSTAINABLE DEVELOPMENT

The Ontario Round Table has identified six guiding principles to meet the challenges of sustainable development:

1. Anticipation and Prevention
2. Full Cost Accounting
3. Informed Decision-Making
4. Living Off The Interest
5. Quality over Quantity
6. Respect for Nature and the Rights of Future Generations

I. ANTICIPATION AND PREVENTION

The response of the past - "react and cure" - has proven to be economically, socially and environmentally expensive, often requiring government action to ensure a clean up. We need to think in terms of sustainable development and adopt a philosophy which "anticipates and prevents" environmental degradation at the planning stages of development projects and when we make consumption decisions.

This principle requires that we deal with the underlying causes of the problem, not just the symptoms. Only in this way will we lessen the environmental pressures generated by these economic activities.

Environmental considerations must be factored into economic policy and strategies, and must become a central component of the decision-making process.

Accountability for the environmental consequences of decisions must be accepted by the responsible stakeholders - whether they be government ministries, institutions, industry or individual citizens.

And we must recognize the individual and cumulative impact of our local activities on a global basis.

Current initiatives and examples of how this principle is being applied demonstrate that consideration of the environment in terms of "anticipate and prevent" can yield dividends economically and actually improve international competitiveness.

- A major company in Ontario has adopted a "pollution prevention program" in which potentially damaging processes are redesigned to reduce the amount and/or toxicity of waste. Since the program's inception, the company has saved well over $1 billion in production costs, while improving its environmental performance.

- Some environment friendly or "green" products have provided consumers with an opportunity to reduce environmental damage. These products have also opened market opportunities in Canada and the United States for a major Ontario grocery chain.

- Effective environmental assessment applied to private and public decisions upfront can prevent expensive clean-up actions in the future.

II. FULL COST ACCOUNTING

Our natural assets - air, water, land, soil, forests, wilderness, fishes and wildlife - are the underlying base of all our economic activity and are required to support a growing human population. Market costs rarely reflect the inclusion of environmental or social cost components, such as resource replacement costs or the potential costs associated with clean-up or environmental damage.

To prevent overuse and exploitation, all prices ideally should incorporate environmental, social, and resource depletion costs. This will provide economic incentives for wise resource use. The challenge is to define and implement the principle in a way that minimizes adverse effects on individuals and groups, or on our international competitiveness.

This principle demands that natural assets be fully valued to ensure proper use and allocation, and to make certain that the beneficiary of the activity pays the full price including the cost of any environmental damage and resource use. This is consistent with the "polluter pay" principle.

Subsidies and incentives that encourage non-sustainable forms of economic activity should also be removed. And a valuation of up-to-date inventories of renewable and non-renewable resources should be maintained and reflected in provincial and national accounts.

How this principle will be implemented, its timing, and who will be responsible for defining "full cost" are very important considerations. However, by applying this principle, we can expect greater economic efficiency and the conservation and enhancement of the resource base for future generations.

Examples of how this principle is starting to be applied:

- Ontario is establishing a water and sewer crown corporation that will allow the full costs of providing these services to be paid by users.

- An Ontario printing firm is paying for a three-year reforestation program to replace every tree its printing press is consuming in paper.

- The federal government is currently exploring the feasibility of a system called "satellite" accounts. This will provide useful information about the sustainability of our environment in the same way that the Gross National Product (GNP) tells us about our economy.

III. INFORMED DECISION-MAKING

Sustainable development requires the integration of environmental and economic considerations in decision-making. The short and long-term consequences of these decisions must be considered. And these decisions must be based on sound information.

For this principle to be implemented, there must be effective public participation in decision-making. There is also a need to have better, and widely understood research on which to base decisions. This may include "State of the Environment" reporting. Also, there must be a broader range of factors included in the planning stage of the decision-making process in order to facilitate informed decision-making.

Current decision-making tends to be biased toward short-term returns. Business investment should reflect longer-term social goals as well.

Additionally, institutions, industries, governments and individuals need to be held accountable for the environmental impact of their expenditures, programs, products and decisions.

We must also develop our understanding of how economic and environmental objectives can be mutually supporting. Integration of the knowledge bases of the two will greatly assist this effort. Consumers as well must have greater access to information about the environmental implications of the products and services that they use.

The following are examples of how the principle of informed decision-making is being applied today:

- A large Ontario chemical firm, as part of its planning process for waste site upgrading, sought public input into its program plans. The plans have been modified, incorporating.the input from the public discussion.

- The use of "EnerGuide" labels provides for informed choices about energy efficiency by consumers who purchase appliances.

IV. LIVING OFF THE INTEREST

(DOING BETTER WITH LESS)

This principle treats our limited natural resources as part of the province's capital wealth. Such "natural capital" must be replaced as it is depleted, or else be reused or recycled. If not, we will bankrupt ourselves just as surely as if we had spent all our financial resources.

At present, this principle of "living off the interest" is being used in some of our agricultural, forestry and fishery practices where the resource is maintained over extended periods without degrading the soil, or depleting timber stands or fish stocks.

The prospect of an increasing population makes it imperative that a greater proportion of human activity be directed toward maintaining and enhancing our natural assets. Only by protecting our natural resource base can we expect future generations to be able to provide for their needs.

Doing better with less allows us to begin to implement this principle. It involves reducing, reusing and recycling. We must balance our consumption of non-renewable resources with our ability to produce renewable substitutes. Non-renewable resources such as mined ores need to be recycled to the maximum. And consumption of renewable resources needs to be at a rate that is sustainable.

In order to do better with less, local, regional, and global economic activities must respect the limits of local, regional and global environmental systems.

Examples of how this principle is starting to be applied:

- The recycling of aluminum, steel, glass, newsprint, and plastics through the Blue Box program reduces the demand for both renewable and non-renewable resources, while conserving much of the energy required to harvest and process primary resources.

- The Ontario Waste Exchange has found new uses for industrial waste by matching the disposal needs of one firm with the raw material requirements of another firm. In 1989/90, the Exchange encouraged reuse of 29,000 tonnes of waste.

- For many years, beer bottles have been returned for reuse.

V. QUALITY OF DEVELOPMENT OVER QUANTITY

Creating a sustainable society will require changes in attitudes, expectations, behaviours, and values for all of us. An increasing focus on quality of economic development will result in smarter production and consumption patterns - such as improved product durability and energy efficiency in the production, distribution and promotion of goods and services.

This principle requires that we adopt urban design patterns that reduce energy and material requirements. It requires that we reduce the amount of waste in our production and consumption activities and shift to products and services that have minimum impact on the environment over their life-cycle.

Some examples include the development of high efficiency end use products and services. Some examples include compact fluorescent light bulbs, public transit, R2000 housing stock, low-flow shower heads, passive cooled and solar heated housing designs and fuel efficient automobiles. These products provide the same end service at a fraction of the energy, environmental and economic cost.

VI. RESPECT FOR NATURE AND THE RIGHTS OF FUTURE GENERATIONS

Our economy depends directly on the quality of our environment and the continued flow of interest from our natural resource base. Nature also represents the spiritual essence of many Ontarians. Ensuring the sustainability of our ecological assets is the only way to preserve the rights of future generations.

This principle implies that decision-making frameworks must consider the opportunity costs associated with resource development and the need for quality of life considerations including the importance of greenspace and the knowledge that all flora and fauna need a place to exist.

New mechanisms are needed to resolve issues where perspectives, lifestyles and value systems among groups are fundamentally different. The rights of future generations and the notion that the environment is an entity unto itself must be considered in reaching any settlement.

Application of the principle means that essential ecological processes and life support systems are maintained so that their natural dynamic processes can continue with as little human interference as possible.

Some examples of this principle include:

- The expansion of national and provincial park systems in Canada will maintain a representative sample of ecosystems, natural heritage sites, diverse species of flora, fauna and aquatic habitats for future generations.

- Other mechanisms, such as the Niagara Escarpment Commission, have been adopted to protect greenspaces and other significant natural areas such as old growth forests, wetlands and endangered species' habitats.

- It has been noted that some North American native groups made decisions based on consideration of the needs of the next seven generations.

- The World Wildlife Fund has undertaken numerous programs to encourage the protection of threatened species and habitats across Canada.

DIRECTIONS FOR CHANGE MILESTONES AND TARGETS

The six principles are the foundation of the Round Table strategy for Ontario. They are the basis for sustainable development decisions.

Adherence to the principles is one of the main thrusts of the sustainable development strategy. Applying them requires new ways of thinking, new decision-making processes, and new ways of doing things. New partnerships among all stakeholders - individuals and organizations - will have to be developed to seek common ground and workable solutions.

Applying the principles may involve structural and economic changes that some may find disruptive or too costly - any disproportionate effect on any particular group will require measures that ensure fair treatment and equity in terms of costs and benefits.

The Round Table has already proceeded to identify and review a number of topic areas in order to illustrate how sustainable development can be achieved in Ontario. The topic areas selected - water, food and agriculture, forestry, solid waste, the atmosphere, and cities and towns - paint a picture of the directions that a sustainable development strategy would take and provide a basis for its implementation.

Each topic is reviewed with a brief description of the issues. Examples of directions for change in the topic areas are outlined based on the six guiding principles. Milestones and targets have been suggested by various organizations for use as measures of progress toward a sustainable society.

The topic areas covered (see Part II) are examples and suggestions for directions and targets. They do not cover all sectors of the economy nor do they address all environmental issues. Other sectors - including extractive industries, manufacturing, tourism and service sectors - must be addressed as well. The public input process and sectoral task force review will ensure that all elements of the Ontario economy and environment are considered.

It is clear that each of the topic areas cannot be considered in isolation. Acid rain covered in "The Atmosphere" affects forestry, food production and water. Energy efficiency improvements affect emissions into the atmosphere and communities and so on.

NEXT STEPS

Using the six guiding principles, the Round Table will undertake a program of consultation on the actions needed to create a sustainable, healthy environment and economy.

In the Fall of 1990, the Round Table will be visiting communities across the province in support of its mandate to build awareness. It will provide information on the principles for sustainable development, the directions for change, and milestones that have been suggested. This will be an opportunity for all Ontarians to discuss the principles, their application, and the issues that sustainable development raises.

At the same time, six sectoral task forces will be established to initiate action and determine how sustainable development can be implemented. They will recommend further directions, targets, timelines and actions.

The task forces will examine the following sectors - agriculture and food, forestry, energy and minerals, manufacturing, transportation, urban development and commerce. They will explore what further actions need to be taken by industry, labour, government, and consumers in the next three to five years, recognizing that everyone has a role to play and taking into consideration the resources available to any one group. The Round Table will integrate these findings into the overall strategy of actions and initiatives.

In addition to questions of implementation, the sectoral task forces will:

- identify the equity issues raised if tough choices have to be made including who pays for pollution control, required labour adjustments and training needs, industry restructuring decisions etc; and

- identify the choices and opportunities that exist for the use of appropriate technology, resource management approaches, investment decisions and the institutional structures that need to be established.

To complement this strategy development process, the Round Table has identified two areas of immediate action to support the long-term strategy and the preparation of action plans by the Sectoral Task Forces. It is recommended that:

- All Ontario organizations that have not already done so should, by early 1991, adopt "Codes of Practice" for sustainable development and conduct a review of their policies, products, processes, procurement practices, and other activities based on the six principles.

- Universities, research institutes, governments and industry associations should develop more and better indicators of progress - targets or milestones - to monitor progress toward sustainable development. The establishment of a new "State of the Environment" reporting system for Ontario could be an important tool to evaluate the effectiveness of the strategy.

WHAT YOU CAN DO

Ontario is in a good position to respond to the challenge of the Round Table on Environment and Economy. Our economy has been healthy, and our actions on the environment have been increasingly positive and proactive. We have the technology, decision-making capabilities and resources to effectively implement sustainable development.

We must now adopt a new course and begin steering a new direction that partners the economy with the environment to ensure sustainable development in the years to come. The work of the Round Table has been established to provide the leadership, but it is going to take the commitment of all Ontarians to achieve our ultimate goal.

Our goal is a sustainable future for Ontario - where both the standard of living and our quality of life are enhanced; where economic progress and prosperity can be accommodated within a healthy environment.

In the meantime, we ask that you review this strategy paper and consider how you or your organization can implement the sustainable development principles.

Your involvement is essential to achieving our goal. It is only through individual action that sustainable development is possible.

- Consider how the six principles presented can apply to your organization and if you do not have a "Code of Practice" on sustainable development, encourage your organization to develop one. The Round Table can provide further information.

- Pass this paper along to others. Let us know if additional copies are needed.

- Write or call the Round Table and ask to have someone make a presentation to your organization.

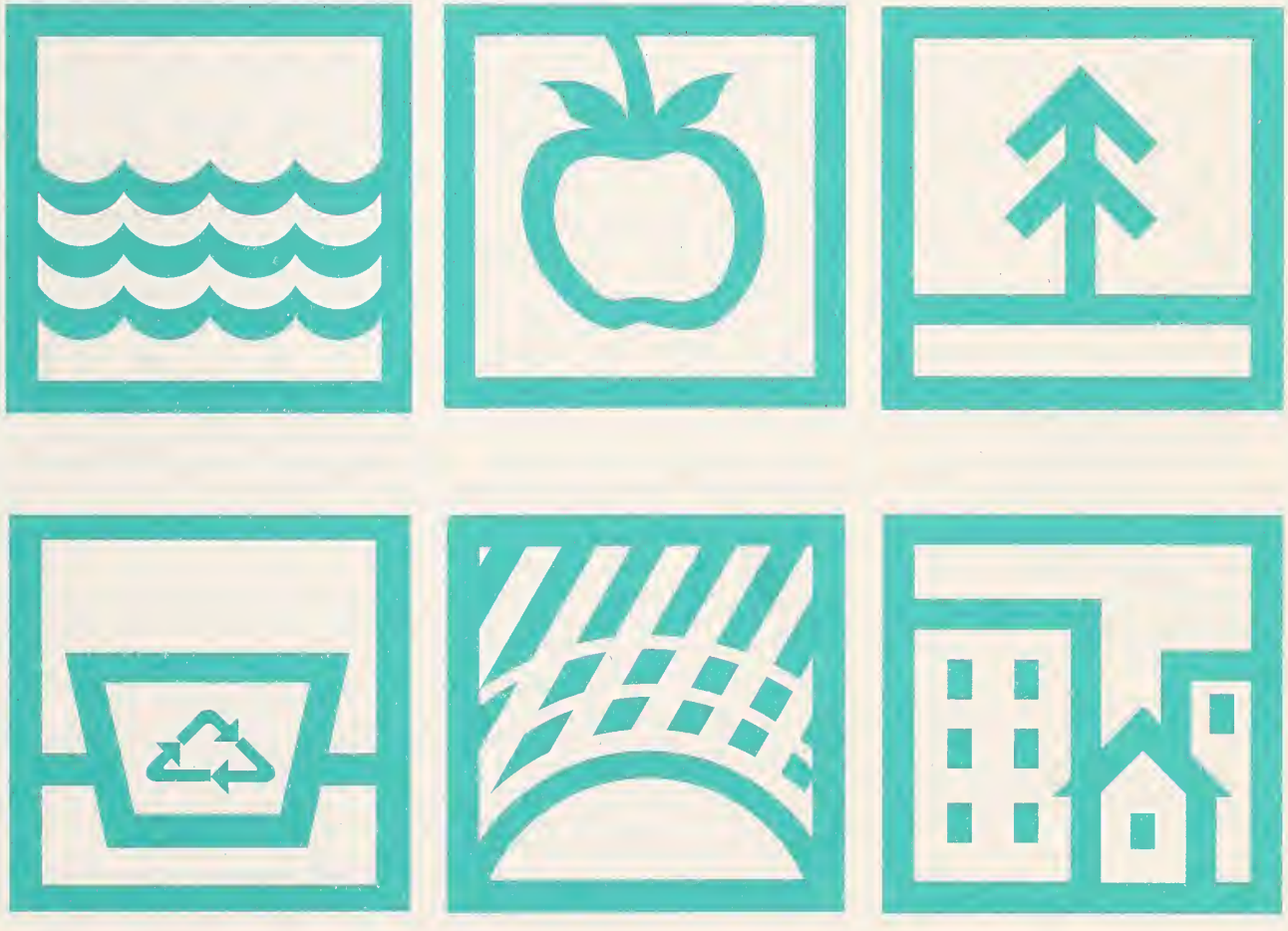
- Get involved in the Round Table's public consultation process. We need individuals to help with the Sectoral Task Forces and we need submissions for review. Already, the Conservation Council of Ontario and the Ontario Environment Network are preparing strategy documents that will assist in the Round Table's work.

The Round Table would like to receive your comments. A response form is attached and we encourage your input.

PLEASE COMPLETE THE RESPONSE FORM AT THE END OF THIS DOCUMENT OR CONTACT:

THE ONTARIO ROUND TABLE ON ENVIRONMENT AND ECONOMY AT: (416) 327-2161 (LONG DISTANCE CALL COLLECT)

PART II
APPLYING THE PRINCIPLES



WATER

BACKGROUND

Water is an essential life sustaining resource and Ontario has jurisdiction over 24% of Canada's freshwater resources. Many thousands of fish communities are found in Ontario's 250,000 inland lakes.

Surface and ground water resources have and continue to provide substantial economic and ecological services to society.

Industry uses water for processing, cooling, transportation, power generation, cleaning, as a source of commercial fish and for tourism and recreational purposes.

Farmers and food processors use water for the production of crops, the processing of food, and in the manufacturing of beverages.

Consumers and municipalities use water for drinking, recreation and transportation as well as a host of domestic purposes.

Safe and secure supplies of water are required to sustain aquatic ecosystems. The quality and quantity of this resource, and its dependent ecosystem components, are under increasing pressures that flow from human activity:

- conventional and toxic loadings
- overuse (aquifer draw down, surface water diversions)
- competing uses
- habitat degradation and reductions
- significant wetland declines

Water pollution poses threats to many current economic activities, fish and wildlife habitats and human health.

For industry, an adequate water supply (quality and quantity) is essential in maintaining and enhancing market positions where process and product quality are critical requirements - especially in the food and beverage industries; fishing, tourism and recreation; and pharmaceutical production.

A healthy system of wetlands is critical since it provides such essential environmental services as water purification, nutrient recycling and animal habitat.

DIRECTIONS FOR CHANGE

Applying the six principles of sustainable development to the management of the quality and quantity of our water resources points to a number of directional changes that need to be made by resources stakeholders including governments, industry, developers and consumers. These directional changes include:

- institute full cost pricing for water use and withdrawals to facilitate sustainable rates of use.

- enhance protection of aquatic habitat and restore degraded ecosystems.

- increase public awareness and involvement in decisions regarding resource use and management practices to foster improved stewardship.

- develop and adopt water conserving practices and devices.

- balance water withdrawals with recharge rates for ground water sources and increase the protection for ground water recharge areas.

- adopt and develop clean and low waste manufacturing technologies and techniques, and market same to industries outside Ontario.

- virtually eliminate toxic discharges and continually reduce conventional pollution released to the environment.

- identify and protect class 1, 2, and 3 wetlands and water bodies of significant or scientific interest to ensure no net loss of wetland areas and the services they provide.

- maximize the efficient use of existing water and sewage infrastructure capacity and upgrade deficient sewage treatment plants.

- adopt more integrated decision making structures and broaden the responsibility and accountability among stakeholders and jurisdictions for resource conservation and protection.

The directions identified above are consistent with the six principles of sustainable development. Further directions and actions are required in order to ensure greater sustainability within this resource area.

MEASURING OUR PROGRESS

How we can effectively move towards sustainability in our use of water resources is the challenge that we face. To measure our effectiveness, we require indicators of sustainability, and targets and timetables for such indicators.

A number of organizations have identified targets that they believe to be important milestones in moving Ontario society towards sustainable use of our resource base. Tough choices will be faced in assessing and moving towards adopted targets.

The Round Table believes that significant opportunities are present in moving towards a sustainable future for those prepared to take the challenge seriously. Today, options do exist.

The following are some of the ways that have been suggested to measure our progress.

- develop demand management policies that facilitate the pricing of water at levels that more closely reflect the costs of effectively managing the resource and that conserve water by 1991[1].

- by 1991, develop fisheries management programs that effectively implement a no net loss policy for fish habitat[2].

- achieve MISA goal of virtual elimination of the discharges of persistent toxic contaminants over the next decade[3].

- attain zero discharge for persistent toxic chemicals[4].

- the adoption of "responsible care" type programs by industrial sectors for all toxic chemicals and waste generated within manufacturing and processing operations[5].

- industrial sectors set targets to virtually eliminate the possibility of spills and toxic contaminant releases to receiving water bodies by 2000 (ie closed loop systems)[6].

- the enactment of a Safe Drinking Water Act[7].

- the development of a provincial ground water protection strategy by 1992[8].

- a significant reduction in per capita water consumption by 2000[9].

- implement remedial action plans in the 12 International Joint Commission "areas of concern" that fall exclusively within Ontario jurisdiction[10] in conjunction with lake-wide management plans.

Sectoral Task Forces will be established by the fall of 1990. These Sectoral Task Forces, in consultation with public and public interest groups, will recommend directions, actions to be taken, targets, timetables and monitoring systems to be adopted over the next decade to move us towards sustainability.

Sources:

1. Greenprint for Canada Committee. Greenprint for Canada: A Federal Agenda for the Environment. Ottawa, 1988.

2. Greenprint for Canada Committee. Greenprint for Canada: A Federal Agenda for the Environment. Ottawa, 1988.

3. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

4. Canada-U.S. Great Lakes Water Quality Agreement.

5. Extension of the Canadian Chemical Producers' Association, Dow Chemical Canada and Dupont Canada goals to other industries and companies. Also proposed by the Non-Governmental Conference on Environment & Development in Bridging the Gap: An Agenda for Action, 1990.

6. As above.

7. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

8. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

9. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

10. The Great Lakes Water Quality Board. 1989 Report on Great Lakes Water Quality. Windsor, 1989.

SOME EXAMPLES OF WHAT IS ALREADY BEING DONE

(PRINCIPLES IN PRACTICE)

SOME FACTS ABOUT WATER

- Ontarians have access to one of the largest fresh water resource bases in the world

- Of the world's supply of water, only one-one hundredth of one percent (excluding ice caps) is considered fresh and available for human consumption.

- On a per capita basis, Canadians are among the largest water users in the world, consuming some 1500 cubic meters of water per year. This volume of water is equivalent to each Canadian filling and draining an average swimming pool 15 times each summer, or 2000 toilet flushings per person per day over the course of a year.

- The Great Lakes store some 18% of the world's fresh water supply.

- Beach closings continue to plague communities across Ontario each summer due to combined sewer overflows.

- Commercial shippers carried some 48 million tonnes of cargo along the St. Lawrence Seaway during 1989, representing more than 3000 transits by some 460 tankers.

- Hydraulic electricity generation amounted to some 35,000 million kilowatt hours, roughly 25% of the electricity generated by Ontario Hydro in 1989.

- 42 areas of concern have been identified in the Great Lakes by the International Joint Committee as requiring remedial action to restore beneficial uses. 17 of these sites fall either jointly or wholly under Ontario jurisdiction.

- a significant amount of the toxic pollution to the Great Lakes comes from airborne sources.

- More than 360 hazardous contaminants have been identified in the Great Lakes by the International Joint Commission.

- 19,000 lakes in Ontario have been adversely affected by acid rain, and thousands more are threatened.

- Canadian wetlands comprise some 14% of our land mass and amount to some 25% of the worlds wetlands. Losses across Canada of wetlands are significant. Wetland losses in southwestern Ontario approximate 90% of the original wetlands.

- Guidelines continue to be required for the safe consumption of fish caught in Ontario waters

GOVERNMENT

- The Provincial Government has initiated several water, soil and air programs to address water related contamination loadings. MISA, a water program, aims to virtually eliminate the loading of persistent toxic contaminants to the province's waterways. CAP, an air program, currently under development has similar objectives to MISA, and SWEEP, a soil and water conservation initiative which aims to reduce the loading of additional contaminants to Lakes Erie and Ontario.

- Remedial Action Plans are being developed for the 17 areas of concern by multistakeholder groups to restore beneficial uses.

- Governments have made significant investments in the provision and upgrading of sewage and water treatment facilities across the province. The provincial government's recent Lifelines Program provides additional funding to assist municipalities in meeting water quality standards.

- The Cities of Kitchener and Waterloo have recently announced a water conservation program to ease water demand by local residents. Several Ontario municipalities have experimented with water treatment technology that reduces the requirement for chlorination as a means of eliminating pathogens.

- Several U.S. municipalities have required developers to retrofit existing households with water conserving devices in order to free up capacity within the water and sewage infrastructure to allow for further residential and commercial development without further infrastructure investment

The Chairman of the new Ontario Water and Sewer Corporation has indicated that water rates will rise by as much as 50% over the next 5 years. This is in order to meet the first phase of requirements under the Municipal-Industrial Strategy for Abatement.

INDUSTRY

- Several Ontario companies within the chemical industry have committed to using "closed loop" designs for their processes, reducing the volumes of raw water required for production purposes and reducing the discharge of contaminants to receiving bodies of water.

- Several steel industry companies in Ontario have greatly reduced their need for surface water withdrawals by using recycled water process designs.

- Several industrial processing technological developments allow manufacturing firms to reduce the toxicity and volumes of waste generated in their manufacturing processes.

- A range of water using devices has been developed by industry which reduces the amount of water used in providing the same end use service (low flush toilets, shower heads, aerators, more efficient heat exchangers, etc.). Ontario Hydro has encouraged the adoption of water conserving technologies through its shower head replacement program.

FARMERS

- Many farmers have undertaken increased efforts to better husband their livestock, reducing water quality degradation that results from poor farm waste management practices.

- Integrated pest management practices have been employed to lower the volumes of pesticides applied to protect crops, resulting in reduced run off to adjacent water bodies.

CONSUMERS

- Consumers have increased usage of water conserving devices such as low-flow shower heads, low flush toilets, and aerators to improve the use efficiencies of water as well as adopting more conserving habits with respect to water use.

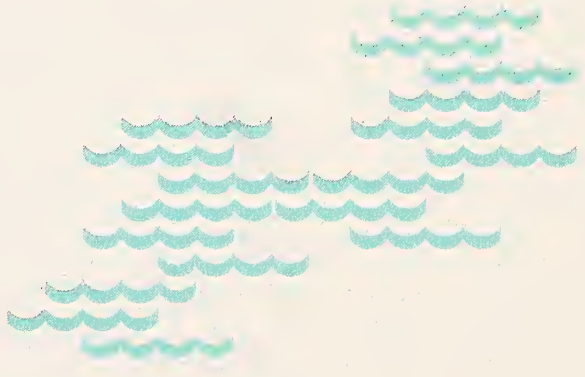
- Consumers are using non-toxic alternatives and are making use of hazardous waste drop-off locations to dispose of residual or dated products.

NON-GOVERNMENTAL ORGANIZATIONS

- A number of non-governmental organizations have produced publications to bring information to the attention of consumers about both problems and solutions related to our water resources.

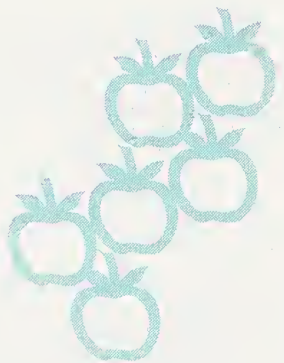
- A number of such groups have and continue to organize clean-ups of water courses.

- Unions continue to involve themselves in local clean water campaigns. For example, the labour community in Windsor was active in supporting the clean-up of the St. Clair River.



FOOD & AGRICULTURE

BACKGROUND



Agriculture is vital to Ontario's economy. Farming, food processing and related activities employ roughly 1 in 5 people in the province and contribute nearly $13 billion to Ontario's Gross Provincial Product. Agriculture by itself injects close to $6 billion into the province's economy each year.

Today, agricultural production and distribution systems are global in scale. We are increasingly affected by what happens beyond our borders, both economically and environmentally.

Agriculture and its dependent ecosystem components, both in Ontario and globally, are under increasing pressures that flow from human activity. These include:

- soil erosion
- air pollution and acid rain
- soil degradation & loss of organic content
- aquifer drawdown
- water contamination from fertilizer and pesticide use
- urban encroachment
- international trade policies
- inequities in international food distribution
- financing arrangements

Population growth, coupled with the above and other pressures, increases the prospect of global food shortages, even if appropriate redistributive systems are employed.

A degraded resource base poses a threat to many current economic activities and ecological services, increases rehabilitation costs and reduces the ability of the world to feed its inhabitants.

A healthy resource base contributes to a strong and sustainable agriculture sector, a healthy and competitive food processing industry, and the potential to increase supplies for global distribution.

DIRECTIONS FOR CHANGE

A variety of encouraging activities are already underway (see pages 18 & 19) which provide us all with examples of things that farmers, businesses and governments can and are doing. In addition to these initiatives, however, there is a need to look further if we wish our food producing systems to be truly sustainable.

Applying the 6 principles of sustainable development to management of our food and agriculture systems points to a number of actions that will make these systems sustainable. The following directional changes need to be considered by all resource stakeholders including consumers, the food processing industry, farmers, government, local communities, etc. These actions include:

- maximizing soil conservation and minimizing soil degradation.

- minimizing the urbanization of prime agricultural land through more compact development and higher urban or suburban densities.

- reducing the energy intensity of food production and processing systems.

- improving water conservation and irrigation practices.

- improving the information available to consumers about modern methods of food production and preparation, advanced methods for detection of both natural and synthetic chemicals and any potential health effects from insecticide, herbicide and fertilizer residues on or in the food they purchase.

- developing a certification and labelling program for organic food.

- examination of the current structure of federal and provincial subsidies so that sustainable agricultural practices and full cost accounting are encouraged. The subsidies provided in other countries will need to be considered in any review. To the extent that changes affect prices, consideration will have to be given to difficult issues that range from hunger to the international competitiveness of our food processing industry.

- reducing and developing alternatives to the use, toxicity and loading rates of synthetic pesticides and herbicides as well as reducing the use of synthetic fertilizers.

- improving the financing options available for production and marketing of sustainable produce and products.

- increasing industrial, government and public procurement and purchasing patterns that promote sustainable agricultural practices.

- conducting sustainable farm demonstration projects as part of an outreach program.

- developing the opportunities which exist for marketing agricultural products produced through sustainable methods.

MEASURING OUR PROGRESS

How we can effectively move towards sustainability in our use of agricultural resources is the challenge that we face. To measure our effectiveness, we require indicators of sustainability and targets and timetables for such indicators.

A number of organizations have identified targets that they believe to be important milestones in moving Ontario society towards sustainable use of our resource base. Tough choices will be faced in assessing and moving towards adopted targets. The Round Table believes that significant opportunities are present in moving towards a sustainable future for those prepared to take the challenge seriously. Today, options do exist. They may not exist tomorrow.

The following ways to measure our progress have been suggested:

- reducing synthetic pesticide use by 50% by 2002 while maintaining a strong and viable farming industry in Ontario[1].

- establishing a certification and labelling program for organic produce by 1992[2].

- instituting transitional programs that will allow farmers to move away from reliance on synthetic pesticides, herbicides and fertilizers[3].

- significantly reducing the loss of prime agricultural land[4].

- significantly reducing the loss of topsoil from Ontario's farms[5].

Sectoral Task Forces will be established in the Fall of 1990. These Sectoral Task Forces, in consultation with the public and public interest groups, will recommend directions, targets, timetables and monitoring systems to be adopted over the next decade to move us towards sustainability.

Sources:

1. Ontario Ministry of Agriculture and Food. A Program to Reduce Pesticides in Food Production. Toronto, 1989.

2. Currently under discussion between the Federal-Provincial Committee on Organic Food and the Organic Food Production Association of North America.

3. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

4. Preservation of Agricultural Lands Association. Legislation and Foodland Trusts: Key Elements in Preserving Prime Foodlands of Ontario. St. Catharines, 1990.

5. Science Council of Canada. A Growing Concern: Soil Degradation in Canada. Ottawa, 1986. This target is an application of this Science Council's report findings to the Province of Ontario.

SOME EXAMPLES OF WHAT IS ALREADY BEING DONE
(PRINCIPLES IN PRACTICE)

SOME FACTS ABOUT AGRICULTURE

- Ontario produces almost all of Canada's soybeans (97%), 75% of the country's corn, 40% of its vegetables and one-third of its livestock.

- The average Ontario farm produced enough to feed 30 people in 1960; it produces enough to feed 120 people today.

- Sustaining increases in farm output is increasingly uncertain as global warming, ozone depletion and soil losses or declines begin, alone and synergistically, to affect agricultural productivity.

- Worldwide, 40 billion tonnes of topsoil are lost each year and 27 million hectares of land are marginalized through soil degradation.

- Around the globe, between 1980 and 2000, some 1.4 billion hectares of arable land will be converted to urban uses.

- Global population increases by roughly 90 million people - almost 4 times the population of Canada - each year. The implications for the world food production and distribution system are enormous.

- Ontario acreage under cultivation declined by 405,000 hectares (6.5% of farmed area) between 1981 and 1986.

- Global economic subsidies to farm producers amount to some $100 billion annually. As a result, consumers pay only a portion of the actual cost for food and agricultural practices are significantly influenced by support programs - some of which may not reflect land stewardship and food distribution requirements around the world.

- Compared to estimates of exposure from other environmental sources (such as water, air, soil) those for food intake represent the largest potential exposure pathway for humans.

- While only accounting for 1 to 1.5% of current food sales, the U.S. organic food business is growing at a rate of 40% per year.

CONSUMERS

- Consumers in Canada are increasingly turning to sustainably produced food and agricultural products. Individuals are stating a preference for these products as a result of both ecosystem and personal health concerns.

GOVERNMENT

- Two provincial government programs begin to address agricultural sustainability concerns: "Foodsystems 2002" aims to reduce agricultural pesticide use by 50% by the year 2002; and the "Land Stewardship Program" aims to conserve soil and water resources.

- By 1992, The Ontario Ministry of Agriculture and Food will have established a new state-of-the-art food testing laboratory and associated programs designed to ensure consumer confidence in food supplies.

FOOD PROCESSING INDUSTRY

- As part of the Federal/Provincial packaging protocol which calls for the reduction of packaging waste by 50% by the year 2000, the Grocery Products Manufacturers of Canada (GPMC) have established an Environment Committee to develop a code of preferred packaging practices for use by manufacturers of food, beverages and consumer products.

- The GPMC as well as the Canadian Council of Grocery Distributors and the Ontario Soft Drink Association have contributed funds as part of the Ministry of the Environment's Ontario Multi Material Recycling Initiative (OMMRI) program to promote the recycling of packaging materials.

FARMERS

- Farmers generally recognize the problems facing sustainable practices. Barriers cited to making necessary changes include economic conditions and lack of technical knowledge. To address the latter concern, conservation tillage demonstration projects under the province's land stewardship program have involved about 8000 farmers. As well, 2100 farmers have joined the Canadian Organic Growers Association and membership continues to grow.

- Integrated Pest Management methods adopted by farmers, in combination with improved products, have reduced pesticide loadings by 90% and have maintained or improved economic results.

- For certain crops and on certain soils, Ontario farmers have been able to utilize no-till crop production without affecting their net farm incomes.

NON-GOVERNMENTAL ORGANIZATIONS

- The Science Council of Canada has announced a plan to study and report on development paths within the agriculture and food system that are economically viable and environmentally sustainable.

- Macdonald College of McGill University has recently established an Ecological Agriculture Program which is dedicated to increasing the sustainability of farming systems.

- The National Farmers Union and the Catholic Rural Life Conference recently put forth a policy proposal entitled "Vision 2000". The proposal is designed to provide various levels of government with input into agriculture and food policies for farmers.

FOREST COMMUNITIES

BACKGROUND

We are only now beginning to understand how important forest communities are to the global environment. Trees play a crucial role in storing carbon dioxide, one of the key gases responsible for the greenhouse effect.

Forests play a number of other significant roles as well. They assist in the regulation of the world's climate, protect watersheds from erosion and serve as a repository for a diverse array of genetic material.

Forests are a vital natural resource on which much of our economy is based. The Ontario forest products industry employs about 73,000 people, indirectly generates another 91,000 jobs and produces wood, pulp, paper and related commodities worth $9 billion each year.

Further, forests found in both cities and the country provide individuals with recreation and relaxation opportunities. They are also critically important to the subsistence of many native communities and serve as an essential habitat to a large number of wildlife species.

This resource and its dependent ecosystem components are under increasing pressure. These pressures include:

- declining biomass
- competing uses and increasing access
- habitat degradation
- soil degradation
- acid rain

The Canadian forest products industry, governments and consumers can address these problems by incorporating environmental considerations into their economic decisions and can realize the benefits that are associated with energy and resource use efficiency. Issues such as the impact of high interest rates on industry, global competition for forest products, and pollution from pulp and paper production will also have to be addressed.

Forests, though renewable, are a limited resource at any one point in time. We must ensure the proper stewardship of this resource so that it is available today and in the future. We must also balance the needs of all forest users, including wildlife, in a fair and equitable manner. To undertake these objectives will require that we build on certain current activities and strategies as well as adopt new directions.

DIRECTIONS FOR CHANGE

A variety of encouraging activities are already underway (see pages 22 & 23) which provide us all with examples of actions that individuals, businesses and governments can and are undertaking. In addition to these initiatives, however, there is a need to look further if we wish to use our forests in a sustainable manner.

Applying the 6 principles of sustainable development to management of our forest communities points to a number of actions that will make our forests sustainable. The following directional changes need to be considered by all resource stakeholders including pulp and paper companies, loggers, the packaging industry, government, consumers, local communities, naturalists etc. These directional changes include:

- ensuring that growth from reforested or managed areas equals or exceeds the amount harvested and lost due to natural disturbances. This might be achieved through improved public involvement in forestry issues at the local and provincial level.

- ensuring that the full value of the forest resource and the cost of forestry management including harvesting is reflected in the price of wood and wood products as well as the price of the non-consumptive services that forest communities provide. It should be noted that this direction will have to be examined in the context of international efforts and may have social equity implications that will need to be addressed.

- increasing public and private funding as well as individual donations for research on forest growth, ecology, soils, reforestation, harvesting methods, road construction and site preparation.

- development of new technologies to eliminate toxic compounds in paper inks and to lower the energy requirements for paper de-inking.

- economic diversification of uses and products of Ontario's forests. This should both support the growth of secondary and tertiary forest product industries and promote tourism, recreational and educational development. Diversification must be sensitive to regional needs and limitations and should address problems facing single-industry communities.

- reducing and reusing packaging and paper by consumers as well as increasing demand for post-consumer recycled paper products to reduce the use of raw materials and energy. Moving in this direction may have an impact on job creation in the forest products industry.

- expanding reforestation within agricultural and urban areas.

- maintaining and enhancing the health of forest ecosystems through a diverse gene pool by developing and implementing a plan to conserve and protect endangered spaces and representative habitats and ecosystems, including old growth forests.

- encouraging and enhancing the establishment of wood lots and forested areas in southern Ontario.

- reducing use of synthetic pesticides and herbicides in forestry for tending and site preparation through the development of alternative methods of protection.

- undertaking more detailed surveys of specific forests including thorough inventories of flora, fauna and wildlife habitat to obtain a better understanding of these ecosystems.

- developing an improved policy for the size and location of clear-cuts. This may require the establishment of a species-dependent approach to the use of clear-cuts on different soils and minimum standards for different harvesting methods.

The directions identified above are consistent with the six principles of sustainable development. Further directions and actions need to be identified in order for the Round Table to develop a strategy for sustainable development that the Province can follow.

MEASURING OUR PROGRESS

How we can effectively move towards sustainability in our use of forest resources is the challenge that we face. To measure our effectiveness, we require indicators of sustainability and targets and timetables for such indicators.

A number of organizations have identified targets that they believe to be important milestones in moving Ontario society towards sustainable use of our resource base. Tough choices will be faced in assessing and moving towards adopted targets. The Round Table believes that significant opportunities are present in moving towards a sustainable future for those prepared to take the challenge seriously. Today, options do exist. They may not exist tomorrow.

The following are some of the ways to measure our progress that have been suggested.

- Ensure that there is no net loss of biological productivity in the province's forests by 1995. Annual additions from natural growth and regeneration, as well as reforestation, should exceed annual removals from logging, forest fires, disease and pests[1].

- Ensure that essential wildlife habitat areas are conserved and protected through completion of a network of protected areas representing each of the province's natural regions (site districts) by the year 2000[2].

- Develop and implement a natural resource accounting system by 1992 that reflects the full economic and environmental costs of forest use[3].

- Replant 500,000 hectares of land in Ontario for a wide variety of economic and social purposes by the year 2000[4].

Sectoral Task Forces will be established in the Fall of 1990. These Sectoral Task Forces, in consultation with the public and public interest groups, will recommend directions, targets, timetables and monitoring systems to be adopted over the next decade to move us towards sustainability.

Sources:

1. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

2. As promoted by the World Wildlife Fund (Canada) in its Endangered Spaces Campaign.

3. International Union for the Conservation of Nature. World Conservation Strategy. Draft 1990. Geneva, 1990. This recommendation is currently being explored by the World Bank, the United Nations Environment Program (UNEP) and Statistics Canada.

4. Greenprint for Canada Committee. Greenprint for Canada: A Federal Agenda for the Environment. Ottawa, 1988; Statistics Canada. Silvaculture Statistics for Canada: An 11-year Summary. Ottawa, 1989. This target is derived from the Greenprint for Canada's recommendation for reforestation across Canada and the figure used represents Ontario's share of Canada's annual timber harvest.

SOME EXAMPLES OF WHAT IS ALREADY BEING DONE
(PRINCIPLES IN PRACTICE)

SOME FACTS ABOUT FORESTS

- Over the past two decades, the percentage of the Earth's surface covered in forests has declined by 20% leading to a loss of genetic diversity, an increase in erosion and a significant release of stored carbon.

- On average, 2.3 million hectares of rainforest are cut and/or burned in Brazil each year for economic reasons.

- In Canada, roughly 1 million hectares of forest are harvested each year, 22% of which are harvested in Ontario. Roughly another 2 million hectares, (20% of which are in Ontario) are lost to fire each year.

- 3.4% of Canada's land mass - roughly 34 million hectares of land - has been protected from commercial interests as wilderness area. These protected areas include both forested and non-forested lands.

- On forest land in Ontario reserved for commercial use, forest biomass has been declining because harvesting and natural disturbances remove more biomass than accrues through yearly growth. This has led to environmental degradation in some areas. As a result of declining biomass, a significant amount of commercial forest area needs to be restocked in order to meet the forest products industry's future needs.

- Some of Ontario's non-renewable forest resources - old growth pine stands that are hundreds of years old and have never been cut - are unique and important habitat for wildlife as well as sources of genetic diversity. Regeneration of these ecosystems can take more than 5 generations (100 years). This means that old growth forest habitats should be viewed as non-renewable and essential parts of our natural heritage.

- Prices for wood and wood products do not always reflect the full cost of forestry management including reforestation.

- Forests and forest soils in all areas of the province are under increased stress from acid rain, smog and other pollution.

GOVERNMENT

- The Ministry of Natural Resources has commissioned the preparation of an action plan that will provide a framework for the development of a new, comprehensive forest policy for Ontario. The new policy is intended to accommodate and reflect the wide range of opportunities and interests that exist in the forest estate including the integration of environmental, social and economic values.

- In an effort to develop new methods of managing the forests in a way that involves all of those with a stake in the forest, the Ontario Government has been establishing citizen advisory committees. It has also agreed with a native band to establish a stewardship council that will make management and planning decisions regarding agreed upon forested areas, including some old-growth forests.

- The Ontario Environmental Assessment Board is currently hearing evidence for a Class Assessment of the environmental consequences of timber management activities. While the Class Environmental Assessment does not address all components of the forest, the results of the hearing will likely lead in the direction of sustainable management of forest ecosystems.

- To complement the system of provincial parks, the Ontario government has endorsed a program that is working on identifying and protecting natural areas on public, private or Crown land that are of significant natural, scientific or educational value. Designated as Areas of Natural and Scientific Interest (ANSI), these areas are managed to preserve important natural geophysical and biological areas while permitting other compatible uses. Areas on Crown land are managed by MNR. Those on public or private land are jointly managed with landowners or conservation authorities. Both the Backus Woods Area (representative of the Carolinian Forest) and the Fleetwood Creek Area (representative of the Oak Ridges Moraine) are examples of joint natural area management and protection under the ANSI program.

- Many municipalities are involved with Conservation Authorities and County Forests and some are examining the development of Community Forests.

- The Municipality of Peterborough is planting 63,000 trees this year - one for each individual living in the community.

INDUSTRY

- A number of Canadian packaging and paper companies have already invested in recycled paper production facilities in order to take advantage of new market opportunities.

- A printing company in Toronto, among others, has developed a program to plant a tree to replace each one consumed in producing paper for its printing jobs.

CONSUMERS

- Many paper users, including the Province of Ontario, have amended their purchasing criteria to encourage the use of recycled paper and paper products.

NON-GOVERNMENTAL ORGANIZATIONS

- Trees for Today and Tomorrow has set a goal of planting 50 million trees in southern Ontario as part of an ambitious campaign of urban and watershed revitalization.

- Forestry unions have promoted policies on reforestation and are working with environmental groups to find new ways of ensuring sustainable forest communities.

- The Ontario Forestry Association, supported by the Ministry of Natural Resources, has established "Trees Ontario", a non-profit foundation that designs and administers tree planting and tending programs in cooperation with corporations and other groups wanting to demonstrate their concern for the environment by sponsoring a "green" project.

- The World Wildlife Fund has called for the establishment of a network of protected areas representative of each of Ontario's natural regions by the year 2000. This will ensure the preservation of essential wildlife habitat, genetic diversity and areas of natural and scientific interest.

- Global ReLeaf, part of Friends of the Earth's Global Warming Campaign, has established as a goal the planting of 15 million trees in towns and cities across Canada over the next 5 years.

- Forests for Tomorrow has engaged in a number of activities in pursuit of improvements in the management of Ontario's forests. They are a major intervenor at the class environmental assessment hearings on timber management.

WASTE

BACKGROUND

Management of municipal, commercial, industrial and hazardous waste has become an expensive consequence of our current consumption-oriented society. Current waste disposal practices are damaging the environment.

Increasing streams of municipal, commercial, industrial and hazardous waste pose increasing burdens on over-taxed waste management systems, represent lost resources (energy, wood, metals and other materials) and raise significant health and social concerns within communities across the province.

DIRECTIONS FOR CHANGE

Consistent with the six principles for sustainable development, the waste management hierarchy should be fully exploited in moving towards more sustainable levels of resource use within our economy.

This hierarchy is to first reduce, then reuse, then recycle, and finally where these options can not be employed, recovery of useful energy and other resource values should be considered before disposal in landfills. The greatest environmental and economic benefits are achieved when this hierarchy is applied at the source.

Further directions which would assist in eliminating waste within our society include:

- improve product durability, serviceability, usability and recyclability.
- improve process designs to reduce both the amounts of waste generated and their toxicity/ flammability/ corrosivity/ radioactivity - and thereby improve in-plant efficiency and international competitiveness.
- reuse materials and products which cannot be reduced at source.
- recycle materials and products which can no longer be reused; at-source composting is an important component of recycling.
- where reduction, reuse and recycling options have been implemented, recover useful energy and other possible materials that can be productively used from the residual waste stream.
- more standardized packaging of commodity products to facilitate and improve the economics of their reuse.
- fully cost waste generation and disposal, and ensure that subsidies do not encourage waste production and disposal through conventional means.
- reduce the packaging of products.
- public and private sector purchase decisions should support markets generated by the reduction, reuse and recycling of materials and products.

The directions identified above are consistent with the six principles of sustainable development. Further directions and actions are required to improve the energy and material use efficiencies of our economy and to ensure greater sustainability of our natural resource base.

MEASURING OUR PROGRESS

How we can effectively move towards sustainability in our use and conservation of natural resources is the challenge that we face. To measure our effectiveness, we require indicators of sustainability and targets and timetables for such indicators.

A number of organizations have identified targets that they believe to be important milestones in moving Ontario society towards sustainable use of our natural resource base. Tough choices will be faced in assessing and moving towards adopted targets. The Round Table believes that significant opportunities are present in moving towards a sustainable future for those prepared to take the challenge seriously. Today, options do exist.

The following ways to measure our progress, in addition to the those already adopted (see examples), have been suggested.

- extension of the Blue Box program in organized municipalities to all houses, restaurants, apartments, offices and industrial sites by 1995[1].

- 50% recycled content of paper and paper products, glass, plastics and metal used in packaging by 1995[2].

- 50% reduction in the generation of hazardous wastes in Ontario by 2000[3].

- the application of public and private sector procurement policies to encourage the manufacturing and use of products that contain recycled materials[4].

- the adoption of more aggressive waste reduction targets than those already in place[5]:

  - 30% reduction by June, 1990
  - 40% reduction by June, 1992
  - 50% reduction by June, 1996
  - 60% reduction by June, 1998

- institute a graduated waste management surcharge system that levies charges against producers of solid wastes as a means of internalizing the costs associated with their products and materials[6].

Sectoral Task Forces will be established by the fall of 1990. These Sectoral Task Forces, in consultations with the public and public interest groups, will recommend directions, actions to be taken, targets, timetables and monitoring systems to be adopted over the next decade to move us towards sustainability.

Sources:

1. Extension to various sectors of Ministry of the Environment programs and announcements, February 16, 1990 and February 19, 1990.

2. Greenprint for Canada Committee. Greenprint for Canada: A Federal Agenda for the Environment. Ottawa, 1988.

3. Canadian Institute for Environmental Law and Policy. A Regulatory Agenda for Solid Waste Reduction. Toronto, 1989.

4. Canadian Institute for Environmental Law and Policy. A Regulatory Agenda for Solid Waste Reduction. Toronto, 1989.

5. Canadian Institute for Environmental Law and Policy. A Regulatory Agenda for Solid Waste Reduction. Toronto, 1989.

6. Canadian Institute for Environmental Law and Policy. A Regulatory Agenda for Solid Waste Reduction. Toronto, 1989.

EXAMPLES OF WHAT IS ALREADY BEING DONE
(PRINCIPLES IN ACTION)

SOME FACTS ABOUT WASTE

- Ontario generates some 10 million tonnes of solid waste annually (roughly one tonne per person per year). In this regard, we are among the most prolific per capita waste generators in the world.

- Approximately 350 Ontario municipalities will run out of land fill capacity within the next 5 years.

- Ontario generates somewhere between 3 and 4 million tonnes of hazardous waste each year. A large but uncertain percentage of this waste ends up in the environment without receiving adequate treatment

- 90% of the domestic waste stream is composed of paper and paper products (36%), organics including yard and kitchen wastes (35%), glass (9%), metals (5%) and plastics (5%).

- Landfilling costs in the Greater Toronto Area have increased six fold over the past four years. Tippage fees charged at area landfills are now as high as $135 per tonne.

- The reprocessing of recycled materials uses a fraction of the energy requirements for the conversion of virgin materials into the same commodity products. Approximate energy savings for iron are 74%, aluminum 96%, rubber 74%, and certain plastics 90%.

- Throwing out an aluminum beer or pop can instead of recycling it represents a waste of energy equivalent to one half of the same can filled with gasoline.

- Canada disposes some 82% of its waste stream in landfills. By contrast, Japan manages to recycle or recover some 72% of its waste stream.

- In one year, Canadians collectively discard 24 million tires, 175 million spray cans, 300 million litres of waste oil, and 250,000 tonnes of soiled diapers.

CONSUMERS

- Citizens have modified their consumption habits and purchasing decisions to minimize and even eliminate their generation of garbage. For instance, 116,000 home composters are now in place across the province.

- The "Blue Box" program in Ontario has proven very popular in a large number of Ontario communities and has resulted in the diversion of some 7 to 10% of the waste stream previously destined for landfills.

- The Household Hazardous Waste Program has proven popular with many residents who want to dispose of their hazardous waste in an environmentally responsible manner.

INDUSTRY

- A number of Ontario companies have reviewed their manufacturing operations. They have identified opportunities to reformulate products and adjust processes to reduce the use and generation of toxic wastes, reduce waste generation and to recover usable heat from their flue gases. For instance, one food processor, through a waste reduction program, lowered the amount of solid waste it generated by 85%. Similarly impressive results have been achieved by others. These changes have improved both their environmental and economic performance.

- The Canadian Chemical Producers' Association has adopted an environmental code of practice which uses the cradle-to-grave approach for one of its product lines. Adoption and implementation of this code is required for membership in its association.

- A number of Ontario companies have modified their packaging to reduce the waste their products generate and have begun marketing their products on this basis.

- A private sector company, in conjunction with a Toronto area municipality, has developed a program to divert up to 100% of the usable wood from the waste stream and to convert this resource into marketable products. The technology developed for this function is now being marketed to municipalities around Ontario and to other jurisdictions

- Three major Ontario daily newspapers have announced their commitment to meet a target of 40% recycled content.

FARMERS

- Farmers in communities adjacent to urban areas have made use of food wastes as animal food supplements.

NON-GOVERNMENTAL ORGANIZATIONS

- Many hazardous waste drop-off programs have been organized by community groups in conjunction with industrial, municipal and provincial government bodies.

- Labour unions are working with municipalities on waste management projects designed to help the environment and find solutions to current waste management problems.

- A number of groups across the province have undertaken waste studies to quantify problems and identify solutions to the waste management issue.

GOVERNMENTS

- The provincial government has established a waste diversion target of 25% by 1992 and 50% by 2000 for municipal, commercial and industrial wastes.

- The Canadian Council of Ministers of the Environment has adopted a policy of 50% reduction in the generation of waste by 2000. The federal government has indicated its intent to comply with this objective.

- The provincial government has modified its purchasing criteria to encourage the manufacturing and use of recycled products within the public service. A large number of public and private sector organizations have adopted similar programs to reduce waste and to encourage the reuse and recycling of our natural resources.

- The Ontario Waste Management Corporation is the proponent in an environmental assessment hearing on establishing a hazardous waste management facility.

THE ATMOSPHERE

BACKGROUND

Human activities have become a key factor affecting the Earth's atmosphere, and may significantly alter its composition. This has the potential to damage natural ecosystems and cause human health problems.

There are many pressures being placed on the atmosphere by human activity.

Damage to the ozone layer caused by emissions of chlorofluorocarbons (CFCs), and other fully halogenated gases may result in an increased incidence of cancer and reduced agricultural productivity.

Carbon dioxide and other "greenhouse gases" may lead to higher temperatures, drought, more variable and extreme weather patterns as well as lower lake levels and loss of wetlands.

Emissions of gases such as sulphur dioxide and nitrogen oxides into the atmosphere cause acid rain which is known to be harmful to aquatic and terrestrial ecosystems.

Finally, respiratory ailments and higher health care costs result from increased low-level air pollution (see "Cities and Towns" section).

Actions taken to alleviate these pressures, therefore, can assist in protecting our environment and health.

DIRECTIONS FOR CHANGE

A variety of encouraging activities are already underway (see pages 30 & 31) which provide examples of individual, business and government initiatives to protect the atmosphere. But much more needs to be done.

Many of the factors leading to atmospheric change stem from the combustion of fossil fuels all over the world. By applying the six principles of sustainable development to these issues, it becomes apparent that significant changes to energy production, accounting and consumption practices are required. Given that we all use energy, we all can take action to safeguard the atmosphere.

Actions include:

- reducing our dependence on fossil fuels and increasing our use of renewable energy sources (solar, geothermal, hydro, etc.).
- continuing to improve the efficiency of energy consuming products (automobiles, houses, light bulbs, electric motors, refrigerators, stoves, furnaces, dryers, water heaters, etc.), and increasing the market penetration of high-efficiency products.
- developing useful targets for reductions in the intensity of energy use and the related negative environmental consequences of that use.
- increasing energy prices to reflect their full environmental cost in a manner that is sensitive to maintaining the competitiveness of industry in the province.

- reducing emissions that contribute to the greenhouse effect, ozone depletion, acid rain and air pollution.

- increasing the number of trees which are being planted.

- shifting incentives from non-renewable energy supplies to conservation and the development of renewable sources.

- eliminating the discharge of ozone-depleting substances.

- developing inspection and maintenance programs for vehicles, and encouraging consumers to have their vehicles inspected and tuned-up annually.

- increasing the use of public transit.

- implementing process changes which result in the elimination of contaminants entering the air from non-combustion sources.

As has been demonstrated by Japan, Germany and Scandinavian countries, the efficient and wise use of energy can actually contribute to a more competitive economy.

MEASURING OUR PROGRESS

How can we improve our air quality and protect our climate? That is part of the challenge which we are facing. To measure our effectiveness, we need to develop targets and timetables.

A number of organizations have identified targets which they believe to be important milestones in these efforts. Tough choices will have to be made in adopting targets. But the Round Table believes that significant opportunities now exist for those who are prepared to meet these challenges. Tomorrow, these options and opportunities may not be available to us.

In addition to the examples on pages 30 and 31, the following ways to measure our progress have been suggested:

- stabilizing greenhouse gas emissions, then reducing emissions below the 1989 level by the year 2000. Further research and development on the causes and effects of global warming should also be initiated[1].

- reductions in carbon dioxide emissions of 20% by 2005 and between 70-80% by 2030[2].

- an 80% reduction in global emissions from fossil-based fuels is required by the year 2030 in order to stabilize the atmosphere at its current composition[3].

- adopting an annual 3.8% primary energy intensity reduction as a means to achieve a 20% carbon reduction target and efficiency improvements in the provincial economy[4].

- reductions in residential energy use through amendments to the Building Code and improved appliance efficiency standards[5].

Sources:

1. Ontario Ministry of Energy. Global Warming: Towards A Strategy for Ontario. Toronto, 1990.

2. The Conference on the Changing Atmosphere. Toronto, June 1988.

3. Worldwatch Institute. State of the World, 1990. New York, 1990.

4. Position forwarded by Friends of the Earth to the Ontario Minister of Energy.

5. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

SOME EXAMPLESOF WHAT IS ALREADY BEING DONE

(THE PRINCIPLES IN PRACTICE)

SOME FACTS ABOUT OUR ATMOSPHERE

- The atmosphere circulates around the globe some 40 times a year: atmospheric pollution knows no boundaries.

- Greenhouse gas concentrations in our atmosphere are increasing at rates from 0.4% to 5% a year. These increases result primarily from the combustion of fossil-based fuels, deforestation, and release of halogenated hydrocarbons (halons and CFCs) into the atmosphere.

- A number of scientists believe that increasing concentrations of carbon dioxide and other greenhouse gases will significantly increase the Earth's mean temperature. Studies have estimated the temperature increase to be somewhere between 1.5 and 4.5 degrees Celsius over the next 40 years.

- While Canadians are responsible for about 2.5% of the world's energy-related carbon dioxide emissions, we are second only to the U.S. in terms of per capita emissions.

- Some forecasters are estimating a 50% increase in the use of fossil fuels by 2010. Other analysts believe it is possible to reduce our fossil fuel use by half and still maintain the present level of "energy services."

- Acid rain results in regional ecosystem damage. Thousands of lakes in Ontario no longer support aquatic life; agricultural yields and forest growth are impaired; man-made structures are corroded; and human health may be adversely affected.

- Local air quality is a public health concern for large urban centres. Primary sources of urban pollution (smog - composed of ozone, nitrogen oxides, sulphur oxides, hydrocarbons and particulates) include transport and industry emissions. As well, long-range transport of certain atmospheric pollutants affects urban air quality.

- Upper atmospheric ozone depletion is caused by the release of man-made CFCs and halons to the atmosphere. Significant seasonal declines in the ozone layer above the earth's poles have been recorded. Ozone layer depletion allows increased amounts of ultraviolet radiation to reach the Earth's surface, increasing the risks of skin cancer and eye damage to humans and impairing the productivity of the land and aquatic food chains.

INDUSTRY

- An Ontario company has recently developed a process that will allow it to reduce carbon dioxide and sulphur dioxide emissions, as well as cut its energy use by two-thirds. The company also benefits from the recovery of a commercially valued product through this new process.

- Innovative schemes have been adopted by U.S. electrical utilities to promote the use of energy-conserving devices by major power consumers. This initiative has allowed them to avoid further expansions of generating capacity, and helps to reduce consumers' energy bills.

- Applied Energy Services in the U.S. has announced a program through which it will fund reforestation efforts in order to offset expected emission increases from new power plants which it is currently constructing.

- An Ontario company was one of the first in the world to commit to phasing out CFC-113 solvents (used to clean printed circuit boards) by 1991.

CONSUMERS

- Individuals are taking action to reduce their impact on the atmosphere through the reuse or recycling of materials made using fossil fuels, such as aluminum, glass and steel.

- Individuals are also making greater use of public transit which can dramatically reduce air pollution. In Toronto, the Toronto Transit Commission (TTC) encouraged individuals to take transit instead of their cars on one day in May. The results - roughly 12,000 additional passengers took the TTC, and measurements of key urban pollutants (nitrogen oxides, carbon monoxide and particulates) decreased 20-30% at two monitoring stations in the Greater Toronto Area.

- During the 1980s, industries and individuals managed to reduce the energy intensity of our economy by an average of 3.3% a year.

GOVERNMENT

- The Ontario government's "Count-down Acid Rain" program will achieve a 50% reduction in sulphur dioxide emissions (from 1986 levels) by 1994.

- Ontario's Environmental Protection Act regulations for 1989/90 have called for a complete phase-out of CFCs by the year 2000.

- The Canadian Council of Ministers of the Environment has indicated its intention to adopt California emission standards for automobiles by 1994. The federal government has also recently announced its intent to proceed with legislation adopting the California emission standards.

- The province's Clean Air Program (CAP), currently under development, will aim to clean up the air in much the same way that the MISA program is intended to eliminate the loading of toxics into Ontario's waterways.

- The Montreal Protocol calls for a 50% reduction in certain ozone depleting substances by 1999 from the amounts emitted in 1986. Canada is a signatory to this document. Ontario has taken regulatory steps to achieve a 100% reduction by 1999.

- Ontario passed an Energy Efficiency Act in 1989 to establish minimum levels of efficiency in energy-using equipment.

- The Dutch government has adopted a target to stabilize its carbon dioxide emissions at 1990 levels by 1995 and it has established a fund for international technology assistance.

- The West German government has adopted a goal to reduce carbon dioxide emissions by 25% by 2005 (based on 1987 levels).

NON-GOVERNMENTAL ORGANIZATIONS

- The Canadian Coalition on Acid Rain (CCAR) has long been active in lobbying the U.S. government to enact legislation that will reduce emissions of acid gases that cause acid rain in Canada.

- Energy Probe has consistently called for increased energy efficiency in order to reduce emissions of compounds contributing to global warming.

- Friends of the Earth has called for a number of actions to be taken to reduce dependence on fossil fuels in order to reduce global warming.

CITIES AND TOWNS

BACKGROUND

Most of Ontario's 10 million people live and work in our cities and towns. In fact, over 60% live in municipalities with populations greater than 50,000. These areas of higher population density are also areas with more intense economic activity. While each activity may be small and may not cause much pollution by itself, the cumulative result can be significant environmental problems which affect the health of citizens and the quality of life in our urban areas.

Large communities and small communities face different social, economic and environmental issues. For example, our largest urban centres must confront the problem of low level air pollution and smog while managing rapid growth pressures. Smaller centres may have to address local water pollution problems while attempting to encourage economic diversification. Issues such as solid waste disposal may require action by all municipalities, but at varying degrees.

Cities and towns therefore have a role to play in setting priorities to address local issues. Community responses can complement actions by individuals and businesses and can provide leadership in implementing sustainable development — whether it be in the natural resources the community requires, the social and economic services it provides, or in the cultural and natural heritage that exists.

It is in our communities that issues surrounding the quality and composition of future development will receive much attention. In addition, in order to lower the environmental pressures (both local and global) related to high energy and material use intensities, while ensuring the health and prosperity of our citizens, we will need to reconsider what activities we undertake and how we undertake them. We will also need to examine our values and how we define and measure progress and success, on both personal and societal levels. The community efforts in our cities and towns will be important to the building of a sustainable future for Ontario.

DIRECTIONS FOR CHANGE

In order to make an effective transition, adjustments need to be made. The following directional changes are consistent with the six principles of sustainable development. They should be read in conjunction with directions in other sections, such as water, waste and the atmosphere as these topics are especially relevant to communities.

- develop provincial and municipal sustainable land use policies which allow for growth and development while conserving and enhancing our natural resource base.

- increase urban population densities.

- review the impact of different growth patterns (sprawl vs. compact, higher density vs. low, centralized vs. decentralized) and their compatibility with sustainable development in Ontario.

- improve the role that environmental assessment plays in achieving sustainable development in Ontario municipalities.

- identify and protect areas of special natural and scientific interest, environmentally sensitive areas, river valleys, headwaters, wetlands, recharge areas and other unique ecosystems.

- through careful planning and design of communities as well as adoption of advanced telecommunications and transportation technologies, reduce the need to travel.

- in other instances, as necessary, increase the provision and use of public transit.

- improve monitoring and reporting of urban air quality and introduce means to reduce the emission of low level air pollutants.

- reduce per capita consumption of energy, raw materials and other natural resources.

- develop, adopt and market high efficiency end use technologies and techniques (transportation, housing, lighting, appliances, motors, etc.).

- achieve the MISA goal of virtual elimination of the discharge of toxic substances from municipal sewer systems.

- improve local and regional self-reliance through long-range economic development planning and economic diversification.

- accelerate the diversification of local economies outside the Greater Toronto Area.

- increase public involvement and degree of local control over resource development decisions.

- encourage municipal involvement in innovative strategies, such as the Ontario Waste Exchange (see "Living off the Interest") and the MISA programs in order to handle urban environmental problems.

- improve environmental education within and outside the formal education system.

MEASURING OUR PROGRESS

Measurement will allow us to assess the effectiveness of our actions in making the transition to more sustainable levels of human activity. A number of possible milestones have been suggested which are consistent with the principles of sustainable development.

A number of organizations have identified targets that they believe to be important milestones in moving Ontario society towards sustainability. The milestones presented here should be read in conjunction with those in other sections, such as water, waste and the atmosphere as they are especially relevant to communities.

- reduce per capita energy consumption by 20% by 2005[1].

- reduce per capita generation of solid, liquid and gaseous waste by 2000[2].

- promote provincial and municipal programs that contribute to more efficient use of energy, such as expansion of urban transit and intercity rail systems[3].

- reduce per capita water consumption by 25% by 2000[4].

- adopt California emission standards for automobiles by 1994 (federal intent to proceed with legislative/regulatory requirements)[5].

Sources:

1. The Conference on the Changing Atmosphere. Toronto, June 1988.

2. The World Commission on Environment & Development (WCED): Our Common Future. London, 1987.

3. Greenprint for Canada Committee. Greenprint for Canada: A Federal Agenda for the Environment. Ottawa, 1988.

4. Publicly mentioned positions: The Canadian Environmental Law Association; Friends of the Earth; Pollution Probe.

5. As agreed by the Canadian Council of Ministers of the Environment.

SOME EXAMPLES OF WHAT IS ALREADY BEING DONE
(PRINCIPLES IN PRACTICE)

SOME FACTS ABOUT CITIES AND TOWNS

- The average Canadian household produces 20 to 40 litres of hazardous waste each year (paint, pesticides, oven cleaners, used motor oils, photographic chemicals, antifreeze, glues, solvents etc).

- More pounds per acre of pesticides are applied in urban areas than on the average acre of forest or agricultural land.

- The stock of automobiles in the world stands at some 400 million. Each emits more that its own weight in carbon to the atmosphere each year.

- A study conducted in Toronto found that automobiles produce 92% of carbon monoxide, 55% of hydrocarbon and 35% of nitrogen oxide emissions. The latter two are primary ingredients of urban smog.

- In a typical urban centre, the primary use of land is for road networks. Anywhere from 30 to 60 percent of the urban land use is dedicated to automobiles for roads, highways, drive ways and parking lots.

- Roughly 60% of the buildings in Canada are single family detached homes.

- In Canada, 77% of all households own one or more cars and 73% of journeys to work are made by the private automobile.

- In Toronto, traffic volume is increasing at a rate of 6% a year.

- Urban centres in Europe are considered to be twice as energy efficient as their Canadian counterparts. This is a result of higher densities, more extensive public transit systems and mixed use zoning among other factors.

- People within the developed nations account for some 20% of the worlds population and consume close to 80% of the worlds resources.

GOVERNMENTS

- the provincial government recently announced its intention to cost-share a $5 billion expansion of urban transit systems to ease the traffic congestion problems within the GTA, reduce automobile use and auto-related emissions, and reduce the pressures for further road system expansion.

- at least five municipalities in Ontario have developed Round Tables to encourage the adoption of broader perspectives in decision making at the local level.

- Elliot Lake has developed a unique means of diversifying its economic base by attracting senior citizens to take advantage of its existing infrastructure.

- One municipal government has adopted a 20% reduction goal for emissions of carbon dioxide by 2005.

INDUSTRY

- numerous industrial product developments have been brought forward in the past decade that provide the same services to end users at a fraction of the environmental cost and often with economic savings to the consumer over existing products and services.

- A housing development association builds high energy efficient housing stock which significantly reduces the amount of energy required to heat and cool the house over the course of a year.

- The recycling industry has successfully made use of what was previously considered waste material. This lowers resource development pressures, improves production energy efficiencies and lowers the pressures on existing waste disposal facilities.

CONSUMERS

- Many consumers have indicated their willingness to support manufacturers which produce goods that are shown to be better for the environment. Products developed and marketed to this consumer segment have sold well since their introduction.

- Some 1.6 million fares are collected daily on the TTC. GO transit supports a ridership of some 126 thousand.

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RESPONSE FORM

The Following questions are provided to help focus your responses to the challenge of the Ontario Round Table. Additional comments are welcome.

1) Do you agree that applying the 6 principles as discussed on pages 6 to 8 will ensure that environmental considerations are brought into the mainstream of economic decision making?

2) Do the proposed actions or "directions for change" in the topic areas ensure that the 6 principles are adhered to?

3) Are there any additional directions for change that should be considered?

4) The paper identifies some milestones and targets in the topic areas. Are these the best means of measuring our progress? How do we ensure that we make progress?

Please send your comments to:
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If you would like a presentation on the Challenge Paper made to your organization or would like to get involved in the work of the Sectoral Task Forces, please write the Ontario Round Table on Environment and Economy or call us at (416) 327-2161 (Long distance-call Collect)

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